OCARC "RF"

A

N O T I C E T O A L L M E M B E R S

THE JUNE MEETING WILL NOT BE HELD AT THE REGULAR MEETING PLACE. SEE PAGE 1.

FIELD DAY. JUNE 24 & 25 1972. MAP TO GET TO THE SITE WILL BE GIVEN OUT AT THE JUNE MEETING. WE WILL NOT BE USING THE SAME SITE AS LAST YEAR.

INSIDE! Short paper, need material - Ed.

TRIAC TRIGGERING

(1)

May Membership Meeting Minutes

The May meeting of the Orange County Amateur Radio Club was held at the Lincoln Savings and Loan Building on May 19, 1972. President, Ron Cade, WA6FIT, called the meeting to order at 8:00 p.m. Absent officers were Vice President, Bob Eckweiler, WB6QNU, Activity Chairman, Kiyoshi Yamachita, W6NGO, and T.V.I. Chairman Bill Robinson, WB6WOO. Following the introduction of officers Ron showed an 8 MM movie of OCARC Field Day 1970.

Ron read a letter from Lincoln Savings and Loan informing the OCARC that the May meeting will be the last that can be held in the meeting room because they need the space for a computer installation. The meeting for June will be held at the Republic Savings and Loan at 2400 E. 17th, Santa Ana.

The ARRL Field Day will be June 24 & 25. The old field day site of the last two years was not available. A possible site at the Naval Air Station will be checked. The following people will act as team captains: 75 meters - Jack Hollander; 40 meters - Jim Keller; 20 meters - Sam Goda; 2 meters - open. Contact Ron Cade. Bill Hall, seconded by Ken Konechy made a motion that $175.00 be allocated for field day expenses. The motion was passed.

Treasurer's Report: Cash: $24.91 Savings: $1067.39. Checking: $156.51. Total: $1,248.81.

Thirty-one members and officers attended the meeting which was adjourned at 10:00 p.m.

Submitted by Ric
Secretary
Richard Nelson

BITS & PIECES

Ron's XYL has recently returned from a trip to Germany. Ron made her promise to take some slides to show the Club, which she did. When do we see them Ron?

Frank, WB6TBU, fell off his roof last week. Speedy recovery Frank and take care of your injured back.

Kiy, W6NGO is back from his trip to Japan, and will be participating in Field Day. How was Japan Kiy?

LeRoy, W6SYC, has received his new HP-35 pocket calculator. This fantastic pocket computer can calculate such problems as $23^{2.3}$, $\frac{1}{639.7}$, Tan 89.999°, or $(6.798432 \times 10^{63})(15.2491 \times 10^{-14})$ in the blink of an eye. Maybe LeRoy will give us all a demonstration.

WA6ENT is now being heard on "94" and getting interested in 6M "DX" with the current band openings.

SURPLUS CORNER

Five Star no longer exists. Bob sold the last of his stock because he will soon be sent to Italy for two years.

K & M held its first year sale and many customers took advantage of the sale prices.

BMC has received a new lot of equipment and components. Of special interest is a remotely tuned R. F. amplifier made by Collins Radio. Three 7085 tubes (4CX250's) are used for finals. They are brand new and built like a "tank."

BJ Supply has a few new items and would merit a visit.

Surplus Sales (see last month's column) has acquired the Five Star stock, but it is not known if it would be wholesaled or added to the Anaheim store.

(3)

TRIAC TRIGGERING

There are many applications which require switching of heavy AC loads with small contacts, or a variable output for lamp dimming or variable motor speed control. Previously SCR's were used, but had the limitation of providing control during the part of the AC cycle which made the anode positive with respect to the cathode. Two SCR's can be used for "full wave" type operation, but the ideal device is the Triac.

The Triac will turn on for both halves of the AC cycle when it receives a gate signal. The symbol for the Triac is shown below with the leads identified.

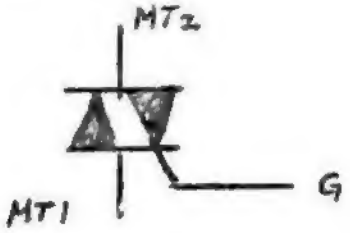

Figure 1

The gate, G, must receive an adequate signal to ensure proper "firing" of the Triac. The relative polarity of the gate signal is also important for proper operation of the Triac. The four combinations of voltage polarities are given in the table below along with remarks concerning the response of the Triac. The four combinations of MT2 and gate polarities are called by quadrants or modes.

Quadrant	"Mode"	MT2	G	Sensitivity*
I	I+	+	+	Good
II	I-	+	-	Fair
III	III+	-	+	Poor
IV	III-	-	-	Good

*Sensitivity of a standard Triac. Many companies offer Triacs which have good sensitivity in all four modes of operation.

To illustrate the meaning of the relative polarity of the gate signal the following ON-OFF application is shown in Figure 2

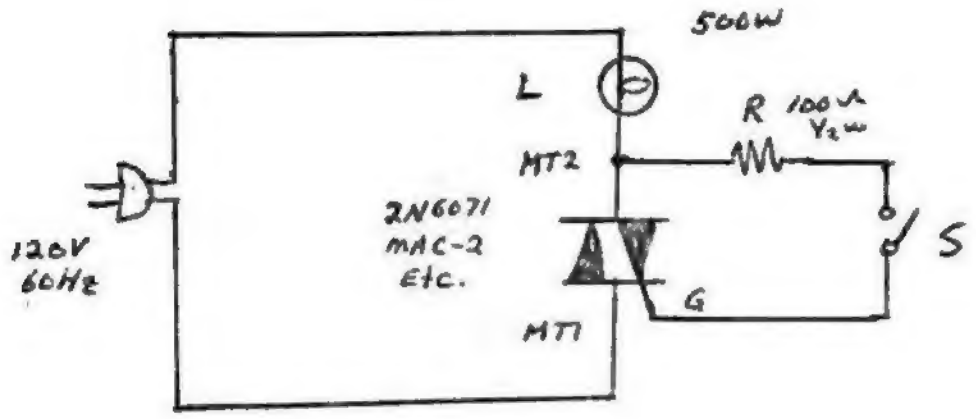

Figure 2

The gate signal is obtained from MT2 through a 100 ohm resistor. The gate is therefore of the same polarity as MT2 resulting in Mode I+ (Quad. I) during positive halves of the AC cycle, and Mode III - (Quad. IV) during the negative half of the AC cycle. This situation is most ideal and excellent operation of most Triacs is possible using this method of triggering. S may be any type of switch, even the smallest of reed switches or relays. When S is closed L is on. When S is open L is off. No arching problems as the current thru S is only a few Ma.

Now let's consider triggering with a DC voltage.

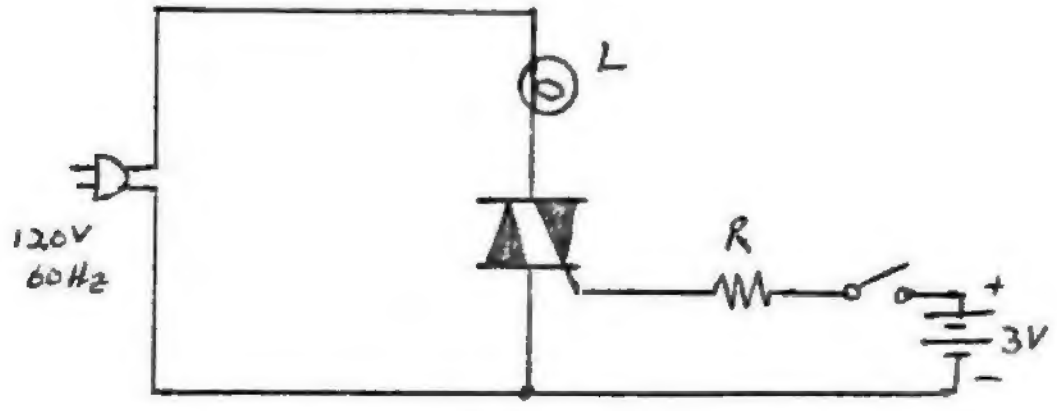

Figure 3

Figure 3 shows a battery used to control the lamp. This results in Mode I+ and III+ triggering which is not too good as a higher current is required in the Mode III+. One solution would be to reverse the polarity of the battery resulting in Mode I- and III- which is better.

Other triggering examples are given in Figures 4 and 5.

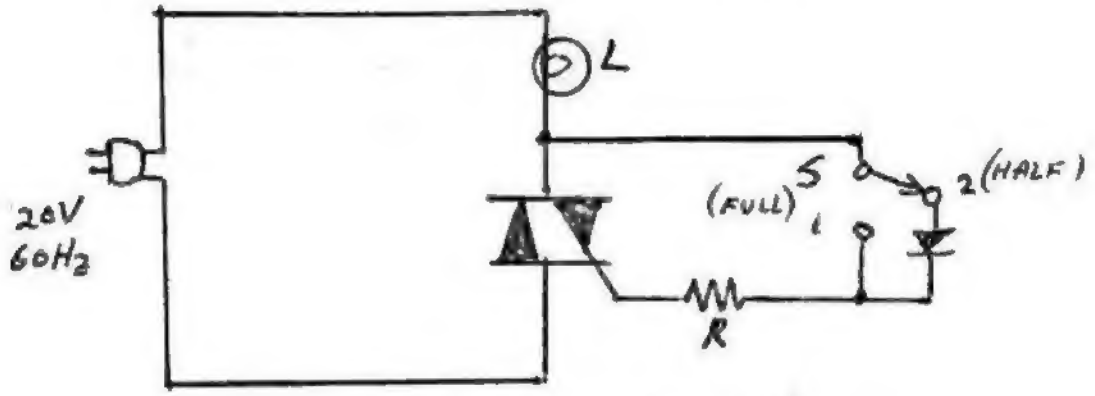

Figure 4 - dual Brightness

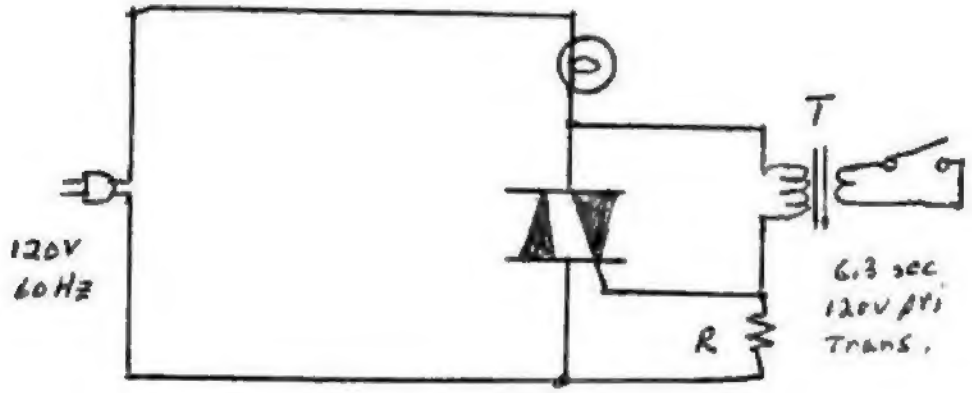

Figure 5 - isolated switching

The purpose of this article has not been to provide technical explanations of the Triac but rather to show the remarkable simplicity of the device and its triggering. Variable brightness control is also simply done, but requires a "special" diode called a bilateral diode or "diac" one circuit is given in Figure 6.

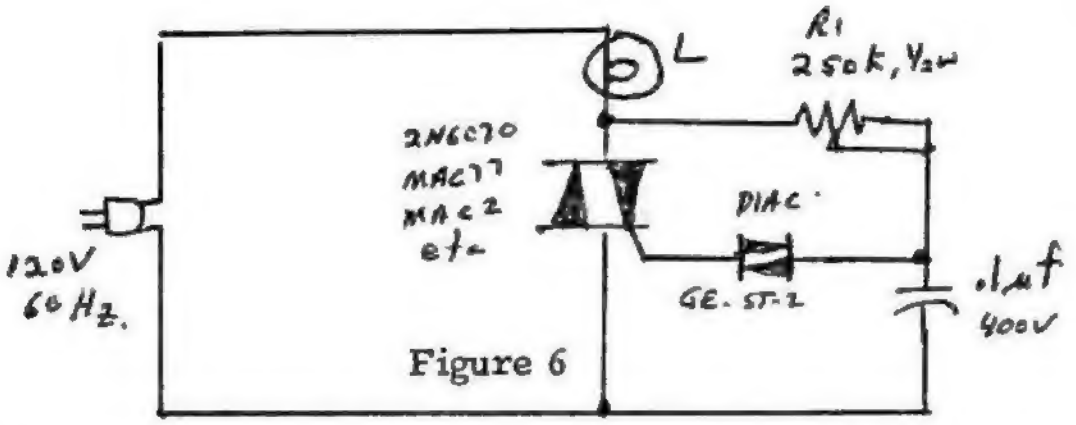

Figure 6

Adjustment of R_1 controls the brightness of the lamp.

There are many, many more circuits, etc. that illustrate Triac application and the following free material is available from the sources listed below.

Application Note	Source
200.35 (200.0)	Inquiry Clerk, General Electric Co. Semiconductor Products Dept. Bldg. #7, Mail Drop 49 Electronics Park Liverpool, New York 13088
Bulletin CA-138 "Triac Triggering Techniques" (CM-102)	Texas Instruments, Inc. Inquiry Service, MS 308 P.O. Box 5012 Dallas, TX 75222
AN-4242 AN-3778 AN-3697	RCA Commercial Engineering Bldg. 22-3 Harrison, New Jersey 07029
AN-526	Motorola

An excellent source of information is the SCR Manual, 5th Edition from G.E., $3.00, in most electronics stores. See pages V, 26, 181, 657.

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First class dated material JUNE 1972

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